

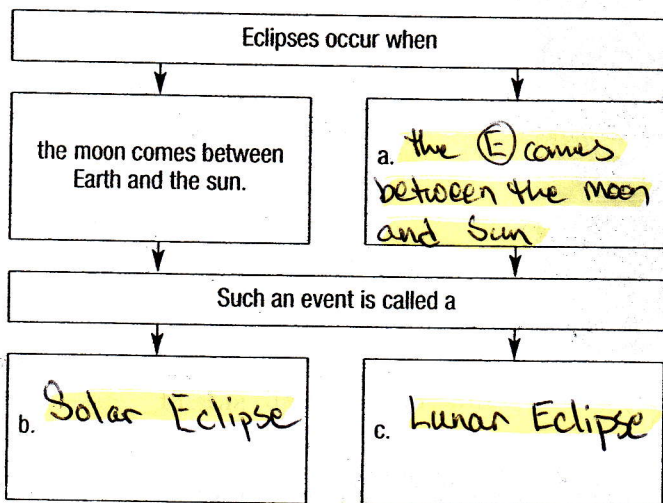
Chapter 22 Origin of Modern Astronomy

Section 22.2 The Earth-Moon-Sun System

This section describes how Earth moves in space and how changes in the relative positions of Earth, the sun, and the moon cause seasons, phases of the moon, and eclipses.

Reading Strategy

As you read, complete the flowchart to show how eclipses occur. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.



Motions of Earth

- Circle the letter of the two main motions of Earth.
 - rotation and precession
 - (b) rotation and revolution**
 - revolution and precession
 - rotation and aphelion
- Is the following sentence true or false? Day and night are caused by Earth's revolution on its axis. **FALSE - "rotation"**
- The point at which Earth is closest to the sun is called **perihelion**.
- Is the following sentence true or false? Seasons are caused in part by the tilt of Earth's axis of rotation. **True**
- What is precession? **The slow wobble of Earth as it rotates on its axis.**

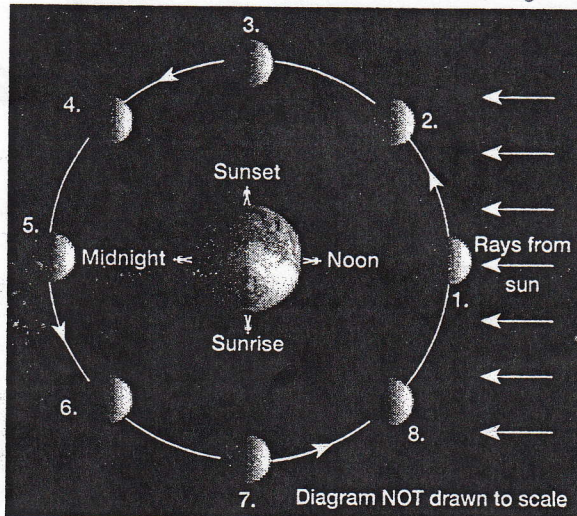
Motions of the Earth-Moon System

- Circle the letter of the term that describes the point at which the moon is farthest from Earth.
 - (a) apogee**
 - aphelion
 - perigee
 - perihelion

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7. Identify each labeled phase on the figure as one of the following: waning gibbous, first quarter, waning crescent, waxing gibbous, new, waxing crescent, full, third quarter.

- | | | |
|----------------------------------|--------------------------|----------------------------------|
| 1. <u>NEW Moon</u> | 4. <u>Waxing Gibbous</u> | 7. <u>3rd Quarter</u> |
| 2. <u>Waxing Crescent</u> | 5. <u>Full Moon</u> | 8. <u>Waning Crescent</u> |
| 3. <u>1st Quarter</u> | 6. <u>Waning Gibbous</u> | |



8. ☒ Lunar phases are caused by changes in how much of the sunlit side of the moon faces Earth.
9. Do the phases of the moon affect how much of the moon is illuminated? Explain your answer. No, 1/2 of the moon is illuminated, or lit up, at any one time, no matter where the moon is along its orbit around Earth - unless it's on the ecliptic during a full moon.
10. Is the following sentence true or false? The cycle of the phases takes about two days longer than the moon's revolution around Earth. True
11. List two reasons why the moon's surface has extremely high and low temperatures. Day/night for a location on the moon lasts a week & lack of atmosphere.

Eclipses

12. A(n) Solar eclipse occurs when the moon passes between Earth and the sun and casts a shadow on Earth.
13. Is the following sentence true or false? A lunar eclipse occurs when the moon passes into Earth's shadow. True
14. ☒ What must happen in order for an eclipse to take place? The moon must be on the ecliptic (Earth-Sun plane).
15. Who can see a total eclipse of the moon when it occurs? All people on Earth during night time.